Mechanism of Tetracycline Resistance in Clinical Isolates of *Mycobacterium fortuitum* group and *Streptomyces* species. Y. PANG[1], R. J. WALLACE JR.[2], B. A. BROWN[2], V. A. STEINGRUBE[2], N. DOUMA[1] and M.C. ROBERTS[1]. Department of Pathobiology, University of Washington, Seattle, WA[1] and Department of Microbiology, University of Texas Health Center, Tyler TX[2].

The *Mycobacterium fortuitum* group is a group of related rapidly growing mycobacterial species which cause skin, soft-tissue, post surgical and pulmonary infections. *Streptomyces* species are gram-positive bacteria with traits related to those found in the genus *Mycobacterium*, but which rarely cause human disease. In this study, six tetracycline resistant clinical *Streptomyces* isolates (from penis, conjunctiva, finger, foot bronchial washing, and blood) and seven tetracycline resistant isolates of the *M. fortuitum* group (three from the ATCC and four from cutaneous infections) were investigated for their mechanisms of resistance. All of the *Streptomyces* were resistant to doxycycline and tetracycline, while intermediate (3) or resistant (3) to minocycline. The *M. fortuitum* isolates were resistant to tetracycline and doxycycline. The isolates were screened against the known gram-positive bacterial Tet genes Tet L, K, M, and O, and the *Bacteroides* Tet Q. We also used the streptomyces genes, Otr A, Otr B and Otr C, which code for oxytetracycline resistance. Because of the homology between Tet K and L and Tet M and O a single polymerase chain reaction (PCR) assay has been developed to detect these pairs. The two PCR assays were used to confirm the DNA hybridization assay for Tet K/L and Tet M/O. Five of six tetracycline resistant *Streptomyces* hybridize with one or more of the Otr A, B and C DNA probes. Tetracycline resistant *M. peregrinum* ATCC 14467 and *M. fortuitum*, third biovariant (sorbitol positive), ATCC 49403 also hybridized with the Otr B, while the remaining five resistant isolates of the *M. fortuitum* group and the tetracycline susceptible *M. fortuitum* ATCC 6841 did not hybridize with any of the DNA probes examined. In addition, four of the *Streptomyces* and *M. fortuitum* ATCC 49403 hybridized and gave PCR products with the Tet K/L genes. These studies suggest that both primary *Streptomyces* resistance determinants, as well as, Tet K/L are present in clinical strains of *Streptomyces*, and that they are also present in some but not all tetracycline resistant strains of the *M. fortuitum* group.